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Laemostenus subtilissimus new species from Central Asia (Coleoptera Carabidae Sphodrini)

Abstract – *Laemostenus (Antisphodrus) subtilissimus*, new species from Tadjikistan, Mt. Seravshan, is described. This species is closely related to *L. praedictus* Dvorak, 1996, which lives in a nearby area, but can easily be distinguished through the shape of the elytra, which are narrower and slenderer, with weaker microsculpture and stronger striation, the occurrence of a small humeral tooth and the aedeagus with an apical dorsal dilation. Both species are related to *L. leptoderus*, type species of the subgenus *Stenosphodrus*, but they have the mesosternum with a tooth in front of the mesocoxae and the pronotum cordate. The occurrence of these two characters, initially regarded as diagnostic for the subgenus *Stenosphodrus*, seems to prove that it is not a valid subgenus, but a junior synonym of *Antisphodrus*, to which we attribute a new *leptoderus*-group of species.

Riassunto – *Laemostenus subtilissimus*, una nuova specie dell'Asia Centrale (Coleoptera Carabidae Sphodrini).

In questo lavoro viene descritto *Laemostenus (Antisphodrus) subtilissimus* nuova specie del Tadjikistan, M. Seravshan. La suddetta specie è affine a *L. praedictus* Dvorak, 1996, descritta di una località poco distante, ma se ne differenzia nettamente per il profilo elitrale ancora più stretto e slanciato, per la più debole microscultura e la più forte striatura delle elitre, la presenza di un piccolo dente omerale e per l'edeago provvisto di una dilatazione dorsale apicale. Entrambe queste specie presentano il mesosterno denticolato davanti alle mesocoxe e il pronoto cordiforme. La presenza di questi due caratteri, la cui assenza era ritenuta diagnostica per *Stenosphodrus* (specie tipo: *Antisphodrus leptoderus* Reitter, 1892) induce a considerare quest'ultimo sottogenere un sinonimo junior di *Antisphodrus*, al cui interno viene proposto un nuovo «gruppo-*leptoderus*».

Key words: Coleoptera, Carabidae, *Laemostenus*, new species, new synonymy.

Introduction

Stenosphodrus has been proposed by Casale (1988: 518) as monobasic subgenus of *Laemostenus* Bonelli, 1810, for *Antisphodrus leptoderus* Reitter, 1892, a central-asian species characterized by several peculiar features (body very elongate, highly slender, depigmented, micropterous; eyes reduced; pronotum longer than wide, not cordate; mesosternum without teeth in front of mesocoxae; aedeagus very long and slender, depressed and widened at apex). The type-species was described upon a single male specimen from «Margelan» (= Margilan), in the present Uzbekistan. Subse-

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quently, Kryzhanovskij & Michailov (1975) reported a second species of *Stenosphodrus*, not agreeing with *L. (S.) leptoderus*, from Mts. Chozratish, in the present Tadzikistan (see Casale, 1988: 520); this species has later been described as *L. (S.) praedictus* by Dvorak (1996). On the other hand, in the recent catalogue by Kryzhanovskij et al. (1995) only *L. (S.) leptoderus* is mentioned.

In the last years we could get some specimens belonging to *L. praedictus* and to a third, undescribed species. In this note we will give a description of the new species and complete the description of *L. praedictus*, comparing both to the species already known.

Furthermore, the study of this new species and of *L. praedictus* allowed us to note that a few characters, previously believed to be peculiar to the subgenus *Stenosphodrus*, in fact were only characteristic of the species *L. leptoderus*. For instance, the pronotum was described as dolioliform in *Stenosphodrus*, but in the two species we know it is cordate. The mesosternum was described as not denticulate in front of the mesocoxae, but in these two species it is distinctly denticulate. This character, in particular, was not mentioned by Dvorak (1996), but we have noted it very evidently in both species, as already mentioned by one of us in the description of another subgenus of *Laemostenus* (Sciaky, 1996). Finally, the aedeagus of both *L. praedictus* and the species here described (Figs. 3-10) is normally shaped, not modified as in *L. leptoderus*. Thus, the most important characters believed to be diagnostic for the subgenus proved not to be valid and therefore we must consider the subgenus *Stenosphodrus* a junior subjective synonym of *Antisphodrus*, the three species *leptoderus*, *praedictus* and *subtilissimus* here described composing a species-group of the latter subgenus, that by priority we will name *leptoderus*-group.

Stenosphodrus Casale, 1988 = *Antisphodrus* Schaufuss, 1865 **n. syn.**

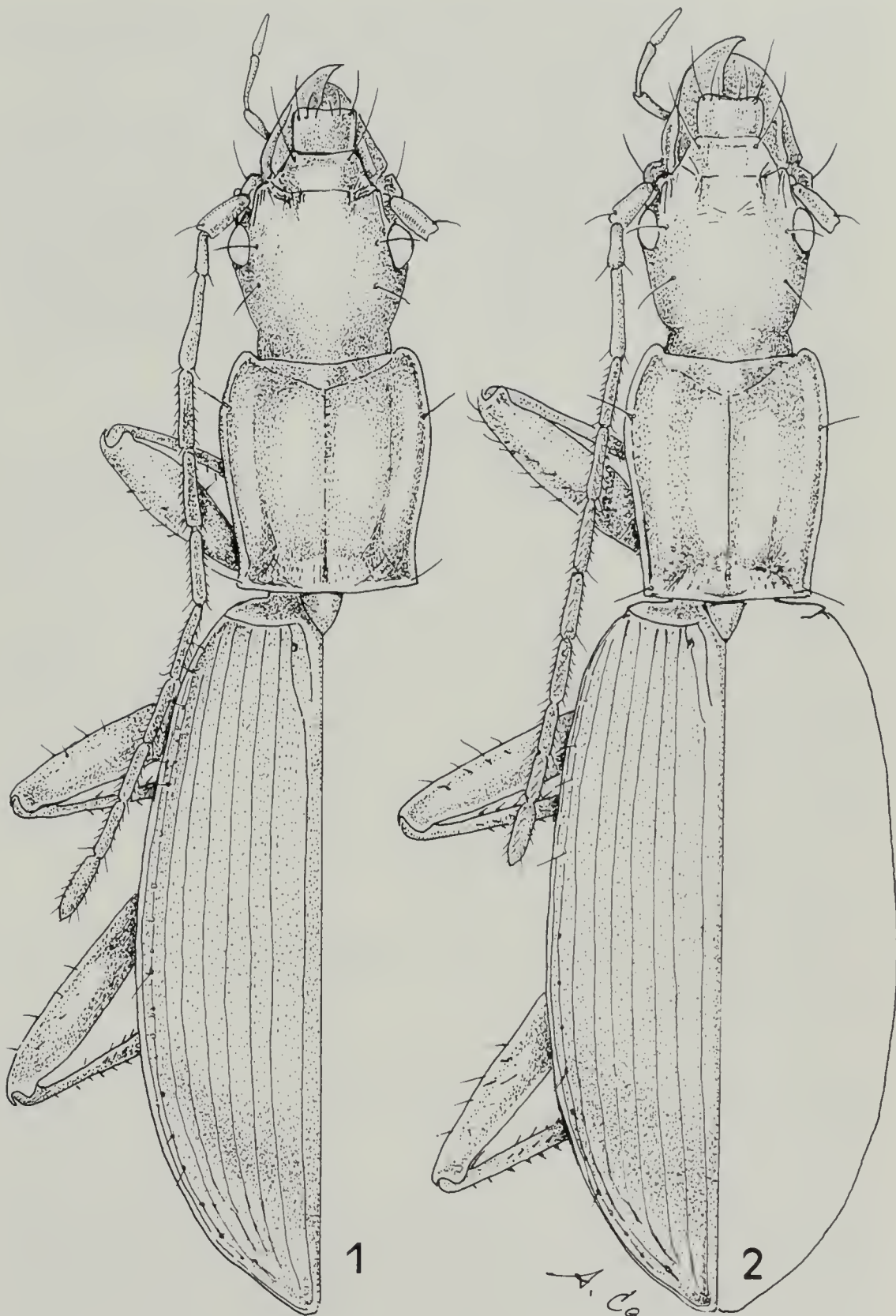
Results and discussion

Laemostenus (Antisphodrus) leptoderus Reitter, 1892

In the revision of the Sphodrina one of us (Casale, 1988) had been able to examine only the holotype of this species, but no additional material. Examining the collection of the former Museum Frey, now in the Naturhistorisches Museum Basel, we have found under the name *L. leptoderus* two specimens. One of them, a female labelled «Cotypus» and «Taschkent, Leder Reitter», did not belong to that species, but to *L. subtilissimus*, described hereafter. Furthermore it cannot be a Paratype, since Reitter (1892) specified that the species was described upon a single male specimen. The second one, a male labelled «Ispajran, Alaj sept.», really belongs to that species and therefore represents the second specimen known. This specimen allows us to better define the distribution area of the species, as Reitter's type specimen was simply labelled «Tadzhikistan, Margelan», where it is very unlikely that a species of high altitude as these are can live. Now the distribution area can be better defined as the Alai mountains south of Margilan. The two following species are diffused to the west of *L. leptoderus*.

Laemostenus (Antisphodrus) praedictus Dvorak, 1996

This species has been described upon 4 specimens from two different localities, Hodzchaobigarm (type-locality) and Guschari, both in the Hissar



Figs. 1-2 - Habitus di *Laemostenus praedictus* (1), *L. subtilissimus* n. sp. (2).

mountains in Tadzhikistan. We had the opportunity to examine five further specimens, one of which topotypical, and therefore can give here some pictures so as to complete those provided by Dvorak (1996).

It is possible to note that the pronotum of the specimens examined by us (Fig. 1) is longer than that drawn by Dvorak (1996), but less than in the following species and the aedeagus, drawn only in ventral view by Dvorak (1996), in lateral view (Fig. 3) is short, weakly bent downward and without apical dorsal dilation. The right paramere (Fig. 7) has a small incomplete hook and is rather thick, but narrower than in the following species and the left paramere (Fig. 9) is rounded and larger than in the following species.

Material examined: Tadzhikistan, Hissar Mts., Hodzchaobigarm 70 km N Dushambe: 1 ♂; Tadzhikistan, Hissar Mts., Ansob: 1 ♀; Tadzhikistan, Hissar Mts., Warzob, 2 ♂♂ 1 ♀.

Laemostenus (Antisphodrus) subtilissimus n. sp.

Diagnosis - A medium-sized (12.8-15.2 mm) *Laemostenus (Antisphodrus)* species, body very elongate and slender, color dark reddish-brown, sides of pronotum weakly but evidently sinuate before the basal angles and the metasternum denticulate in front of the mesocoxae. Close to *L. (A.) leptoderus* and to *L. (A.) praedictus*, but easily distinguishable for several characters (see enclosed key for identification).

Type locality: Tadzhikistan, Mt. Seravshan, Marguzor lake, Hurdak.

Type-material: ♂ holotype from Tadzhikistan, Mt. Seravshan, Marguzor lake, Hurdak, 25-30 April 1996, in coll. Museo civico di Storia naturale di Milano. Paratypes: 12 ♂♂ ♀♀, same data as holotype, in coll. Casale and Sciaky; 5 ♂♂ ♀♀, same locality of holotype, 8-10 May 1989, in coll. Sciaky and Facchini; 31 ♂♂ ♀♀, same locality of holotype, 30 April 1997, in coll. Pavesi, Facchini, Wrase and Sciaky; 1 ♀ from Taschkent, Leder Reitter, in coll. NHMB.

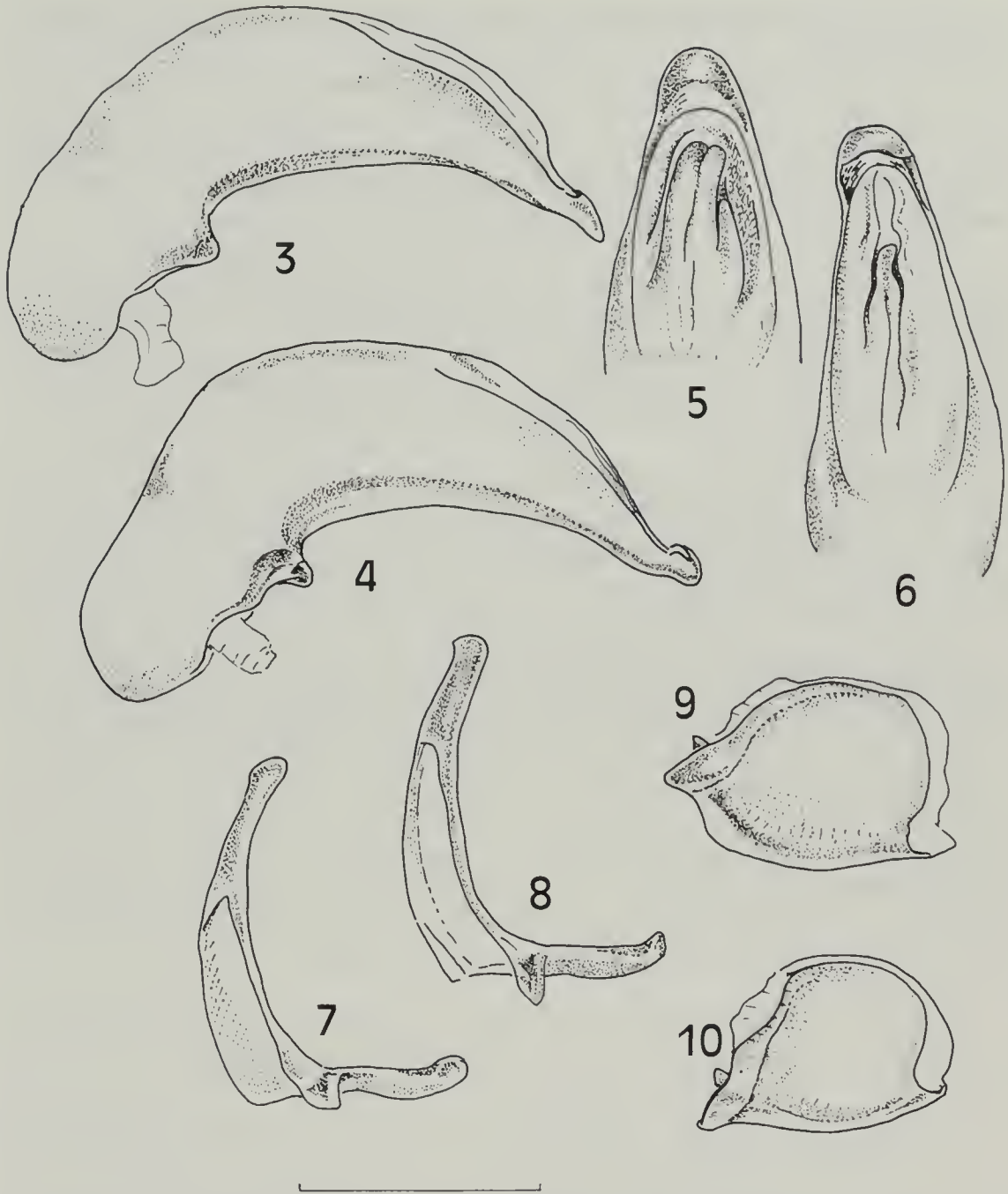
Derivatio nominis - This specific epithet derives from the latin absolute superlative *subtilissimus* (= very narrow) and alludes to the shape of the body of this narrow and elegant species.

Description - Total length (from the apex of mandibles to the apex of elytra): 12.8-15.2 mm. Dark reddish brown; palpi and antennae reddish. Head and pronotum very shiny; elytra with rather dense isodiametric microsculpture. Habitus as in Fig. 2.

Head long and slender; genae long, slightly arcuate, neck constriction evident; eyes very small, less than half of genae, prominent; frontal furrows very short, deep, foveate; antennae very elongate and slender, almost reaching the middle of elytra.

Pronotum elongate-cordate, distinctly longer than wide (ratio l/w = 1.17), a little wider than head, widest at anterior fourth; base slightly arcuate, finely beaded at sides only. Front angles rounded, slightly protruding. Sides gently arcuate in front, very weakly sinuate only before the basal angles, which are right; anterior and latero-basal seta present. Disk smooth, median line rather shallow, basal foveae deep, sparsely rugoso-punctate. Mesosternum with an acute tooth on each side in front of the mesocoxae, well developed in most specimens but almost completely effaced in a few of them.

Legs very long and slender; profemora smooth on the ventral side, protibiae without additional pubescence on distal third, mesotibiae straight;



Figs. 3-10 - Median lobe of aedeagus in lateral (3-4) and dorsal (5-6) view, right paramere (7-8) and left paramere (9-10) of *Laemostenus* spp. *L. praedictus* (3, 5, 7, 9). *L. subtilissimus* n. sp. (4, 6, 8, 10) (scale bar = 1 mm).

femora and tibiae with long, spinose setae. Tarsal segments elongate and narrow, dorsally strigose, all with long, dense dorsal setae; three basal segments of male protarsi dilated. Tarsal claws long, smooth in the inner (ventral) side.

Elytra elongate-ovate, subconvex, very narrow at base, with sides subparallel in the middle, almost not widened in the apical third, shoulders with a very tiny but perceptible tooth; striae well engraved, evidently punctate; intervals weakly convex and smooth. Basal umbilicate pore present; one apical pore-puncture on stria 7; umbilicate marginal series subinter-

rupted at middle. Underside impunctate; abdominal sternum 7 with a single seta on each side.

Aedeagus rather short and thick, in lateral view (Fig. 4) with an evident apical dorsal dilation, in dorsal view (Fig. 6) with apex rather square and with evident thickening; right paramere (Fig. 8) with a small but visible incomplete hook and very thick, even more than in the preceding species, left paramere (Fig. 10) rounded and small, with membranous apex.

Distribution - This species is known upon a rather long series of specimens collected in two different years in one locality of Tadzhikistan very close to the border with Uzbekistan. Also *L. praedictus* is known only from Tadzhikistan, but it occupies a region that is nearly 100 km east from the only known station of *L. subtilissimus*. As far as *L. leptoderus* is concerned, the localities where it has been collected are nearly 300 km to the east of the area of *L. praedictus*.

Discussion - The occurrence of a third species of the *leptoderus*-group in Tadzhikistan is the prove that this group is quite widespread in the region and it is likely that more undescribed species will be found on the mountains of Central Asia when more regions presently difficult to access will be explored by skilled entomologists.

From the biogeographical point of view, the occurrence of three *Antisphodrus* species in Central Asia is very interesting: analogously to what can be observed in the *Sphodropsis* lineage, which is represented today by several Asian species and by one isolated, extant species in the Western Alps, this fact demonstrates the derivation of the euro-mediterranean subterranean Sphodrina from Asian, forest-dwelling montane euro-asian lineages. Unlike *Sphodropsis*, however, *Antisphodrus* in the new sense includes only few, isolated central asian representatives and many species in the euro-mediterranean area, which has been a secondary, very important center of differentiation of this lineage (Casale, 1988).

A key is provided here to the three *Antisphodrus* species of the *leptoderus*-group known to day so as to allow an easy identification.

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|---|-----|---|-------------------------|
| 1 | (2) | Pronotum cordate, mesosternum denticulate in front of mesocoxae. Aedeagus shorter and thicker | 3 |
| 2 | (1) | Pronotum dolioliform, mesosternum not denticulate in front of mesocoxae. Aedeagus very long and slender, widened at apex .. | <i>L. leptoderus</i> |
| 3 | (4) | Elytra widened in the posterior half; humeral angle completely rounded; elytra with stronger microsculpture and weaker striation. Aedeagus as in Figs. 3, 5, 7 and 9 | <i>L. praedictus</i> |
| 4 | (3) | Elytra almost parallel-sided; humeral angle with a small but evident tooth; elytra with weaker microsculpture and stronger striation. Aedeagus as in Figs. 4, 6, 8 and 10 | <i>L. subtilissimus</i> |

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References

- Casale A., 1988 - Revisione degli Sphodrini (Coleoptera, Carabidae, Sphodrini). Monografie, 5 - Museo Regionale di Scienze Naturali, Torino. 1024 pp., 1401 figg.
- Dvorak M., 1996 - Einige neue Stenotherme *Laemostenus*-Arten (Coleoptera, Carabidae, Sphodrini). Entomofauna, München, 16 (22): 413-420.
- Kryzhanovskij O. L. & Michailov V. A., 1975 - A review of the Middle Asian species of the genus *Pristonychus* (Coleoptera, Carabidae). Zool. Zhurn., 54: 139-142 (in russian).
- Kryzhanovskij O. L., Belousov I. A., Kabak I. I., Kataev B. M., Makarov K. V. & Shilenkov V. G., 1995 - A checklist of the ground-beetles of Russia and adjacent lands (Insecta, Coleoptera, Carabidae). Pensoft publ., Sofia - Moscow, 271 pp.
- Reitter E., 1892 - Fünfter Beitrag zur Coleopterenfauna des Russischen Reiches. Wien. Ent. Zeit., 11 (2): 59-68.
- Sciaky R., 1996 - *Laemostenus (Arabosphodrus) balkenohli* new subgenus and new species from Oman (Coleoptera: Carabidae: Sphodrini). Fauna of Saudi Arabia, 15: 206-210.